Chapter 9 Review

Transformation --maps an initial figure, preimage, to a final figure, image

Isometry --transformation that does not change the size or shape of the preimage

Reflection --type of transformation representing a flip of a figure
A reflection can be made in a point, line, or a plane

Reflections on the Coordinate Plane

x-axis
(a, b) ⟶ a, -b

y-axis
(a, b) ⟶ -a, b

origin
(a, b) ⟶ -a, -b

line y = x
(a, b) ⟶ b, a

9-2 Translation

Translation--transformation that moves all points of a figure the same distance in the same direction

A translation is an isometry.

(slide, glide, shift)

(x, y) ~~(x + 2,~~ y - 3)

~~(3,4)~~ (5,7) → (7, 4)

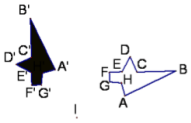
9-3
A Rotation -is a transformation that turns every point of a preimage through a specified angle and direction about a fixed point.

The center of rotation -is the fixed point.

The angle of rotation -is the specified angle.

Rotations are generally measured with counterclockwise turns.
A half-turn is 180 ° and a full-turn is 360 °.

Examples: Polygon ABCDEFGH is rotated about the point I 90 °.



9.5 Dilation

Dilation is a transformation that changes size

Center point
scale factor--r
|r| > 1 enlargement
|r| < 1 reduction
|r| = 1 congruence transformation

Since a dilation is not an isometry, it is called a similarity transformation.